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28 March 1994

From: Commander, Western Division, Naval Facilities Engineering Command
To: Distribution

Subj: INVALID SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSIS FOR
NAVAL AIR STATION (NAS) ALAMEDA ECOLOGICAL ASSESSMENT

Encl: (1) PRC letter to the Navy of 18 March 1994 regarding explanation of Invalid SVOC
Analysis
(2) PRC letter to Kinnetic Laboratories of 18 March 1994 regarding Kinnetic
Laboratories Resampling and ToxScan Reanalysis for SVOC's

1. Enclosure (1), from the Navy's CLEAN contractor, PRC, describes invalidation of SVOC data in the Draft Ecological Assessment Report due to lack of quality control and calibration data. This problem affects only SVOC data. Because of these problems the analytical lab, subcontractor to PRC, ToxScan has revised its procedures and will use instrumentation to prevent this problem in the future. Kinnetic Laboratories, Inc and ToxScan will collect new samples and perform analysis to provide validatable data for SVOCs at no cost to the government.

2. Enclosure (2) describes revisions to the current ToxScan procedures to eliminate validation problems and provides a schedule for delivery of new SVOC data. Kinnetic Laboratories is currently in the field collecting new samples for SVOC analysis. It is expected that revisions to the Draft Ecological Assessment will be available for review in early July.

3. If you have any questions or need additional information, please call Mr. George Kikugawa, Remedial Project Manager at (415) 244-2559 or FAX (415) 244-2553.

Original signed by
MARCELO G. PASCUA, JR.
By direction

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March 18, 1994

Mr. George Kikugawa (1811GK)
Department of the Navy
Naval Facilities Engineering Command
Western Division
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CLEAN Contract Number N62474-88-D-5086
Contract Task Order 0226

**Subject: Explanation of Invalid Semivolatile Organic Compound (SVOC) Analyses,
Naval Air Station (NAS) Alameda Ecological Assessment**

Dear Mr. Kikugawa:

This letter responds to your request for clarification of the problems related to the determination that data are invalid for samples analyzed during the NAS Alameda ecological assessment for SVOCs. While the vast majority of the NAS Alameda ecological data are validated and usable, the SVOC data generated by ToxScan, Inc. under contract to Kinnetic Laboratories, Inc. (KLI) have been determined to be unusable. A brief history and explanation of the issues which resulted in this conclusion are provided below.

PRC Environmental Management, Inc. (PRC) received the draft ecological assessment report from KLI on December 3, 1993. At that time, KLI notified PRC that ToxScan had identified potential problems with the SVOC data for the project. Both KLI and ToxScan were investigating the problem and would let PRC know of its extent. PRC verbally alerted the Navy to the problem. PRC requested ToxScan to send its copies of the SVOC analytical data. The complete set of data was received in mid-January 1994. This issue did not affect the remaining organic or inorganic analytical data or the bioassay, bioaccumulation, or benthic results.

Because of difficulty meeting specific storm sampling conditions, the ecological assessment report was originally planned to be submitted without stormwater data. The stormwater samples were collected December 13 and 14, 1993, and the Navy decided to hold distribution of the ecological assessment report pending incorporation of results from the stormwater sampling. The KLI/ToxScan investigation of the SVOC problems continued during the stormwater analyses.

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On February 18, 1994, KLI and ToxScan notified PRC that the SVOC data could not be validated and, therefore, were unusable. The Navy was notified verbally immediately. The mailing of the draft ecological assessment report was scheduled for February 18, 1994. Because receipt of the ecological assessment report had been anticipated by regulators for several months, several options were evaluated and it was decided to mail the report as it existed. The Navy will notify the regulators of the SVOC problems on development of a remedial plan. This decision was supported by the soundness of the majority of the ecological assessment data.

On February 21, 1994, KLI and ToxScan proposed remedial measures. On March 2, 1994, PRC visited the ToxScan facilities to determine whether the conditions leading to the problem had been corrected. PRC made recommendations to KLI and ToxScan to improve its SVOC sample processing. PRC has required that all recommended corrective actions be implemented prior to start of the new work.

ToxScan stated in its case narrative for semivolatile analyses that many of the original quality control (QC) and calibration data were not saved when they were manipulated in the computer attached to the gas chromatograph/mass spectrometer. As a result, they could not be retrieved for comparison with analytical results. In addition to the loss, there are concerns that proper documentation is not available to assess changes in instrument operating conditions when data were originally produced. As a result, none of the SVOC concentrations which have been reported can be verified. ToxScan modified its procedures.

Numerous QC violations also are associated with these data, including surrogate and matrix spike and matrix spike duplicate (MS/MSD) recovery and calibration problems. Many of the problems with the recoveries of surrogate and MS/MSD compounds have to do with matrix interference. The majority of these data had problems in the recovery of spiked compounds due to the inability of ToxScan to preclean the sample extracts. Due to these interferences, identification and quantification of the compounds of interest are very difficult. ToxScan will install the gel permeation chromatography (GPC) instrumentation to resolve this problem.

Another issue which compromises the validity of the SVOC data is the calibration which is associated with them. Many of the initial calibrations do not conform to corresponding calibration check compounds, possibly as a result of the frequent reprocessing of the sample data. In other words, samples may have been quantitated using calibrations that had no correlation to the samples themselves. ToxScan has revised its process to avoid this problem in the future.

In addition to the problems with the SVOC data, samples were analyzed for chemical oxygen demand (COD) using a method that is unreliable in water as saline as the samples from NAS Alameda.

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Apparently, ToxScan initiated U.S. Environmental Protection Agency (EPA) contract laboratory program (CLP) data validation procedures late in the process. This resulted in the analyses being virtually completed before problems were identified.

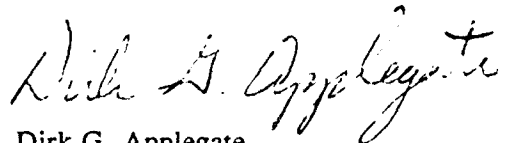
Any of the SVOC issues alone would be enough to cause the data to be unusable. When combined, the SVOC data are not usable for the NAS Alameda ecological assessment. KLI and ToxScan have agreed to collect new samples which will be analyzed for SVOCs under ToxScan's revised procedures. PRC will provide oversight of these activities. The costs of the resampling, reanalyses, and oversight will be borne by KLI and ToxScan. PRC feels that replacement of the unusable SVOC data will be adequate. The remainder of the data, which are the majority of the ecological assessment, are usable for describing the ecological conditions of the five areas of NAS Alameda studied.

If you have any additional questions or require further clarification, please contact one of us at (303) 295-1101.

Sincerely,



Terry L. Ruiter
PRC Project Manager



Dirk G. Applegate
PRC Project Chemist

TLR/drp

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March 18, 1994

Dr. Joseph O'Connor
Kinnetic Laboratories, Inc.
P.O. Box 1040
Santa Cruz, CA 95061

Subject: Kinnetic Laboratories Resampling and ToxScan Reanalysis of Naval Air Station (NAS) Alameda Samples

Dear Dr. O'Connor:

PRC would like to thank Kinnetic Laboratories, Inc. (KLI) and ToxScan, Inc. personnel for their assistance and time while Dirk Applegate visited the ToxScan facilities and reviewed the laboratory procedures on March 2, 1994.

As we discussed during our meeting, resampling and reanalyses are going to be required to meet the data needs for the NAS Alameda ecological assessment as a result of the inability to validate the semivolatile analytical data. Specifically, all samples analyzed using EPA semivolatile organic compound (SVOC) analytical method 8270 will need to be reanalyzed and any samples exceeding holding time requirements will require resampling, including bioaccumulation samples. It will be necessary to schedule a sufficient period of time to deliver results by May 30, 1994. This includes bioaccumulation on sediments for locations for which the original sample has been exhausted. For ToxScan, Inc. to complete this project satisfactorily, at least the following three steps must be taken to improve the current laboratory procedures:

1. Implementation of gel permeation chromatography (GPC) for cleanup of all samples (as required by contract laboratory program [CLP] protocol)
2. Implementation of a software package which can electronically receive data from analytical instruments and report those data in CLP-like format
3. Addition of another quality control person to aid Kathryn Hart in review of these data is recommended, because of the increased efficiency that should result from steps 1 and 2.

In addition to these steps, it will be necessary to address the concerns MITRE Corporation expressed during its audit. Upon review of your schedule to comply to the MITRE concerns, PRC has reservations about the timeliness of your actions and the subsequent effect on the NAS Alameda project timeframe. As we also discussed, PRC feels it would be in everyone's best interest for ToxScan to subcontract another laboratory to run confirmation analyses on 10 percent, by matrix, of the samples to be analyzed.

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Another issue which is essential for this project to succeed is better communication between PRC, KLI, and ToxScan. Dirk Applegate will need a point of contact at the laboratory who knows the daily status of the project and is technically capable of communicating any problems which may arise. Weekly phone calls between Dirk and this individual will be necessary at a minimum.

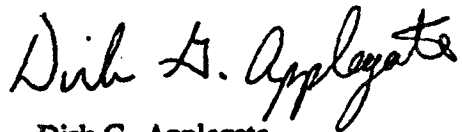
A schedule for the corrective action is attached. Unless PRC is directed differently by the Navy, ToxScan, Inc. will be expected to comply with the above requirements by the June 3, 1994 deadline for reporting fully validated data.

If you have any further comments or concerns please contact me at (303)295-1101.

Sincerely,



Terry L. Ruiter
PRC Project Manager



Dirk G. Applegate
PRC Project Chemist

cc: Philip Carpenter, ToxScan
Mary Lee Kinney, Kinnetic Laboratories
Gail Rubin, PRC
Pat Kinney, Kinnetic Laboratories
Kathryn Hart, ToxScan
George Kikugawa, WESTDIV

SCHEDULE FOR CORRECTIVE ACTION

ACTIVITY'	DATE
Modified ToxScan semivolatile analysis system installed and operational	March 16, 1994
PRC audit of ToxScan modified system	March 21, 1994
Water and sediment resampling	March 22 - May 11, 1994
Semivolatile analyses	March 23 - May 27, 1994
Minimum project status phone call to PRC	March 25; April 1,8,15,22,29; May 6,13,20,27; June 3, 1994
Delivery of new data and revised report sections to PRC	June 3, 1994